

WHAT IS CLAIMED IS:

1. A system for sending information in a network using a redundant switching architecture, the system comprising:

a first control element for executing a protocol stack having an internetwork layer, said internetwork layer being operable to send a communications frame;

a first device driver associated with said first control element, said first device driver being operable to communicate with a second control element via a first switching plane;

a second device driver associated with said first control element, said second device driver being operable to communicate with said second control element via a second switching plane; and

a virtual device driver associated with said first control element, said virtual device driver being positioned in communication with said internetwork layer, first device driver, and second device driver,

wherein said virtual device driver operates to map said communications frame from said internetwork layer to both said first and second device drivers.

2. The system as recited in claim 1, wherein said protocol stack comprises a host-to-host transport layer positioned in communication with said internetwork layer.

3. The system as recited in claim 2, wherein said host-to-host transport layer comprises a Transport Control Protocol (TCP)-based layer.

4. The system as recited in claim 2, wherein said host-to-host transport layer comprises a User Datagram Protocol (UDP)-based layer.

5. The system as recited in claim 2, wherein said protocol stack comprises an application layer positioned in communication with said host-to-host transport layer.

6. The system as recited in claim 1, wherein said communications frame conforms to an Ethernet-based protocol.

7. The system as recited in claim 1, wherein said mapped communications frame comprises an Ethernet frame including a sequence number, said sequence number for identifying a duplicate communications frame.

8. The system as recited in claim 1, wherein said internetwork layer comprises an Internet Protocol (IP)-based layer.

9. The system as recited in claim 1, wherein said protocol stack is instantiated in an operating system environment selected from the group consisting of Unix, Linux, Windows® NT®, and Sun® Solaris®.

10. A system for receiving information in a network using a redundant switching architecture, comprising:

a first control element for executing a protocol stack having an internetwork layer;

a first device driver associated with said first control element, said first device driver for receiving a first instance of a communications frame from a second control element via a first switching plane;

a second device driver associated with said first control element, said second device driver for receiving a second instance of said communications frame said second control element via a second switching plane; and

a virtual device driver associated with said first control element, said virtual device driver being positioned in communication with said internetwork layer, first device driver, and second device driver,

wherein said virtual device driver operates to map one of said first and second instances of said communications frame received from said second control element to said internetwork layer.

11. The system as recited in claim 10, wherein said protocol stack comprises a host-to-host transport layer positioned in communication with said internetwork layer.

12. The system as recited in claim 11, wherein said host-to-host transport layer comprises a Transport Control Protocol (TCP)-based layer.

13. The system as recited in claim 11, wherein said host-to-host transport layer comprises a User Datagram Protocol (UDP)-based layer.

14. The system as recited in claim 11, wherein said protocol stack comprises an application layer positioned in communication with said host-to-host transport layer.

15. The system as recited in claim 10, wherein said communications frame conforms to an Ethernet-based protocol.

16. The system as recited in claim 10, wherein said communications frame comprises an Ethernet frame including a sequence number, said sequence number for identifying a duplicate communications frame.

17. The system as recited in claim 10, wherein said internetwork layer comprises an Internet Protocol (IP)-based layer.

18. The system as recited in claim 10, wherein said protocol stack is instantiated in an operating system environment selected from the group consisting of Unix, Linux, Windows<sup>®</sup> NT<sup>®</sup>, and Sun<sup>®</sup> Solaris<sup>®</sup>.

19. A communications method in a network using a redundant switching architecture, the method comprising the steps of:

generating a communications frame including a first header at a first control element;

mapping said first header to a second header and encapsulating said communications frame with a set of two redundant destination addresses, whereby two instances of said communications frame are created;

transmitting said communications frame instances including said second header and said redundant destination addresses from said first control element via both a first switching plane and a second switching plane;

receiving said communications frame instances at a second control element via both said first switching plane and said second switching plane; and

retaining one of said communications frame instances received via said first switching plane and second switching plane.

20. The communications method as recited in claim 19, wherein the step of retaining one of said communications frame instances includes the step of decapsulating said communications frame instances.

21. The communications method as recited in claim 19, wherein the step of retaining one of said communications frame instances includes the step of discarding one of said communications frame instances based on a sequence number associated with said communications frame instances.

22. The communications method as recited in claim 19, wherein the step of retaining one of said communications frame instances includes the step of discarding one of said communication frame instances based on a checksum associated with said communications frame instances.



23. A communications system in a network using a redundant switching architecture, the system comprising:

means for generating a communications frame including a first header at a first control element;

means for mapping said first header to a second header and encapsulating said communications frame with a set of two redundant destination addresses, whereby two instances of said communications frame are created;

means for transmitting said communications frame instances including said second header and said redundant destination addresses from said first control element via both a first switching plane and a second switching plane;

means for receiving said communications frame instances at a second control element via both said first switching plane and said second switching plane; and

means for retaining one of said communications frame instances received via said first switching plane and second switching plane.

24. The communications system as recited in claim 23, wherein said means for retaining one of said communications frame instances includes further comprises means for decapsulating said communications frame instances.

25. The communications system as recited in claim 23, wherein said means for retaining one of said communications frame instance includes means for discarding one of said communications frame instances based on a sequence number positioned associated with said communications frame instances.

26. The communications system as recited in claim 23, wherein said means for retaining one of said communications frame instances includes means for discarding one of said communications frame instances based on a checksum associated with said communications frame instances.